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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/767,452	01/23/2001	Klaus Schafer	30563/181659	2118

826 7590 02/21/2003

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EXAMINER	
DEL SOLE, JOSEPH S	

ART UNIT	PAPER NUMBER
1722	6

DATE MAILED: 02/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-6

Office Action Summary	Application No.	Applicant(s)	
	09/767,452	SCHAFER ET AL.	
	Examiner	Art Unit	
	Joseph S. Del Sole	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *17-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-11 and 13-16* is/are rejected.

7)☒ Claim(s) *7 and 12* is/are objected to.

8)☒ Claim(s) *1-20* are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1-16, drawn to a melt spinning apparatus, classified in class 425, subclass 72.2.

   II. Claims 17-20, drawn to a melt spinning process, classified in class 264, subclass 103.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by another and materially different apparatus such as an apparatus which does not have a gas permeable inlet cylinder positioned between the spinneret nozzle and the inlet of the cooling tube.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation between Examiner Tentoni (GAU 1732) and Charles B. Elderkin on 27 January 2003 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-16. Affirmation of this election

must be made by applicant in replying to this Office action. Claims 17-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

6. The disclosure is objected to because of the following informalities: **a)** the abstract currently refers to both the apparatus and method, but since the method was nonelected without traverse the Applicant should amend the abstract to refer to the apparatus only.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Schippers (3,999,909).

Schippers teaches a melt spinning apparatus having an extruder (Fig 1) for heating a polymeric material and extruding the resulting melt through a spinneret nozzle (Fig 1, #2) to form a plurality of downwardly advancing filaments; a cooling tube (Fig 1, #10) disposed below the spinneret nozzle for receiving the advancing filaments and having an inlet, a cylindrical portion below the inlet, and an outlet (Fig 1, #10); a gas permeable inlet cylinder (Fig 1, #4) positioned between the spinneret nozzle and the inlet of the cooling tube; a suction generating device (Fig 1, #11) connected adjacent the outlet of the cooling tube so as to generate an initial cooling air stream through the cooling tube in the direction of the advancing filaments (Fig 3); an air supply device (Fig 1, #24) for generating an additional cooling air stream in the cooling tube, with the air supply device being positioned downstream of the inlet of the cooling tube; guide means (Fig 1, #18) for gathering the advancing filaments to form an advancing multifilament yarn; a winder (Fig 1, #3) for winding the advancing multifilament yarn into a package; the air supply device is connected to the cooling tube such that the initial cooling air stream and the additional cooling air stream flow together in the direction of the advancing filament (Fig 1 and Fig 3); the air supply device comprises at least one opening in the cooling tube between the inlet and the outlet (Fig 1), and wherein ambient air is caused to enter the cooling tube through the at least one opening by the suction generating device so as to form the additional cooling air stream (Fig 1, the structure of the apparatus of Fig 1 is such that ambient air will be sucked in through

opening #24 when valve #12 is open and opening #24 is left open to the surrounding atmosphere); the air supply device has at least one opening in the cooling tube between the inlet and the outlet, and an air stream generator connected to the at least one opening, and wherein air is caused to positively enter the cooling tube through the at least one opening by the air stream generator so as to form the additional cooling air stream (col 5, lines 3-6); the air stream generator has an injector which has a nozzle bore and a source of compressed air connected to the nozzle bore (Fig 1, #24 and col 5, lines 3-6), with the nozzle bore of the injector communicating with the at least one opening, and wherein the cooling tube defines a center axis, and wherein the nozzle bore is inclined with respect to the center axis at an angle less than 90° so that the additional cooling air enters the cooling tube in a direction having a component in the direction of the advancing filaments.

9. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Mears (EP0682720B1) or Mears (WO95/15409).

Mears (either reference) teaches a melt spinning apparatus having an extruder (Fig 3) for heating a polymeric material and extruding the resulting melt through a spinneret nozzle (Fig 1, #25) to form a plurality of downwardly advancing filaments; a cooling tube (Fig 3, #s 35 and 59 together) disposed below the spinneret nozzle for receiving the advancing filaments and having an inlet, a cylindrical portion below the inlet, and an outlet; a gas permeable inlet cylinder (Fig 3, #65) positioned between the spinneret nozzle and the inlet of the cooling tube; a suction generating device (Fig 3, #37) connected adjacent the outlet of the cooling tube so as to generate an initial

cooling air stream through the cooling tube in the direction of the advancing filaments (Fig 3);. an air supply device (Fig 1, #39 and #60) for generating an additional cooling air stream in the cooling tube, with the air supply device being positioned downstream of the inlet of the cooling tube; guide means (Fig 1, #33, the filaments are gathered in the cooling tube, such bringing together is aided by #33) for gathering the advancing filaments to form an advancing multifilament yarn; a winder (Fig 3, #28) for winding the advancing multifilament yarn into a package; the air supply device is connected to the cooling tube such that the initial cooling air stream and the additional cooling air stream flow together in the direction of the advancing filament (Fig 3); the air supply device comprises at least one opening in the cooling tube between the inlet and the outlet (Fig 1), and wherein ambient air is caused to enter the cooling tube through the at least one opening (Fig 3, the portion represented by #39) by the suction generating device so as to form the additional cooling air stream); the air supply device has at least one opening in the cooling tube between the inlet and the outlet, and an air stream generator connected to the at least one opening, and wherein air is caused to positively enter the cooling tube through the at least one opening by the air stream generator so as to form the additional cooling air stream (Fig 3, #60); the air stream generator has an injector which has a nozzle bore and a source of compressed air connected to the nozzle bore, with the nozzle bore of the injector communicating with the at least one opening, and wherein the cooling tube defines a center axis, and wherein the nozzle bore is inclined with respect to the center axis at an angle less than 90° so that the additional cooling air

enters the cooling tube in a direction having a component in the direction of the advancing filaments.

10. Claims 1, 2, 4, 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Katou et al (5,173,130).

Katou et al teach a melt spinning apparatus having an extruder (Fig 1) for heating a polymeric material and extruding the resulting melt through a spinneret nozzle (Fig 1, #1) to form a plurality of downwardly advancing filaments; a cooling tube (Fig 1, #11) disposed below the spinneret nozzle for receiving the advancing filaments and having an inlet, a cylindrical portion below the inlet, and an outlet; a gas permeable inlet cylinder (Fig 1, #3) positioned between the spinneret nozzle and the inlet of the cooling tube; a suction generating device (Fig 1, #8) connected adjacent the outlet of the cooling tube so as to generate an initial cooling air stream through the cooling tube in the direction of the advancing filaments (Fig 1); an air supply device (Fig 1, #14) for generating an additional cooling air stream in the cooling tube, with the air supply device being positioned downstream of the inlet of the cooling tube; guide means (Fig 1) for gathering the advancing filaments to form an advancing multifilament yarn; a winder (Fig 1) for winding the advancing multifilament yarn into a package; the air supply device is connected to the cooling tube such that the initial cooling air stream and the additional cooling air stream flow together in the direction of the advancing filament (Fig 1); the air supply device has at least one opening in the cooling tube between the inlet and the outlet, and an air stream generator connected to the at least one opening, and wherein air is caused to positively enter the cooling tube through the at least one

opening by the air stream generator so as to form the additional cooling air stream (Fig 1, #14); the air supply device has an annular perforated sheet (Fig 1, the portion of the annular cylinder with openings in #12); the annular perforated sheet element forms part of the cylindrical portion of the cooling tube (Fig 1).

11. Claims 1 and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Peckinpaugh et al (4,204,828).

Peckinpaugh et al teach a melt spinning apparatus having an extruder (Fig 1) for heating a polymeric material and extruding the resulting melt through a spinneret nozzle (Fig 1, #5) to form a plurality of downwardly advancing filaments; a cooling tube (Fig 1, the middle portion of #6) disposed below the spinneret nozzle for receiving the advancing filaments and having an inlet, a cylindrical portion below the inlet, and an outlet; a gas permeable inlet cylinder (Fig 1, the top of #6) positioned between the spinneret nozzle and the inlet of the cooling tube; a suction generating device (Fig 1, #17) connected adjacent the outlet of the cooling tube so as to generate an initial cooling air stream through the cooling tube in the direction of the advancing filaments (Fig 1); an air supply device (Fig 1, the bottom portion of #6 through which the lower arrows #25 are drawn) for generating an additional cooling air stream in the cooling tube, with the air supply device being positioned downstream of the inlet of the cooling tube; guide means (Fig 1, #18) for gathering the advancing filaments to form an advancing multifilament yarn; a winder (Fig 1, #21) for winding the advancing multifilament yarn into a package; the air supply device is connected adjacent the outlet of the cooling tube and so as to be positioned below the suction generating device such

that the additional cooling air stream flows opposite to the direction of the advancing filaments (Fig 1); the air supply device is a second cooling tube (Fig 1, the bottom portion of #6 is a different tube relative to its middle portion due to the separation effect of #17) through which the filaments advance, and wherein the second cooling tube is axially connected to the first mentioned cooling tube adjacent the outlet thereof and such that the additional cooling air stream is generated by the suction generating device (Fig 1); the second cooling tube has an inlet and a cylindrical outlet, and wherein the air supply device has at least one opening in the cylindrical outlet of the second cooling tube (the cylindrical outlet is the at least one opening); the second cooling tube includes an inlet and wherein the outlet of the first mentioned cooling tube and the inlet of the second cooling tube are interconnected by an outlet chamber (Fig 1, #17), with the suction generating device being connected to the outlet chamber.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 1-6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geus et al (5,766,646) in view of any of Jarrett (2,838,365), Vassilatos (4,687,610), Martin (5,234,327) and Schilo et al (5,612,063).

Geus et al teach a melt spinning apparatus having an extruder (Fig 1) for heating a polymeric material and extruding the resulting melt through a spinneret nozzle (Fig 1, #3) to form a plurality of downwardly advancing filaments; a cooling tube (Fig 1, tube containing sections #5, #9 and #20) disposed below the spinneret nozzle for receiving the advancing filaments and having an inlet, a cylindrical portion below the inlet, and an outlet (Fig 1, at #6); a gas permeable inlet cylinder (Fig 1, #4) positioned between the spinneret nozzle and the inlet of the cooling tube; a suction generating device (Fig 1, #18) connected adjacent the outlet of the cooling tube so as to generate an initial cooling air stream through the cooling tube in the direction of the advancing filaments; an air supply device (Fig 1, at #15) for generating an additional cooling air stream in the

cooling tube, with the air supply device being positioned downstream of the inlet of the cooling tube; the air supply device is connected to the cooling tube such that the initial cooling air stream and the additional cooling air stream flow together in the direction of the advancing filament (Fig 1 and Fig 3); the air supply device comprises at least one opening in the cooling tube between the inlet and the outlet (Fig 1), and wherein ambient air is caused to enter the cooling tube through the at least one opening by the suction generating device so as to form the additional cooling air stream (Fig 1, the structure of the apparatus of Fig 1 is such that ambient air will be sucked in through opening #24 when valve #12 is open and opening #24 is left open to the surrounding atmosphere); the air supply device has at least one opening in the cooling tube between the inlet and the outlet, and an air stream generator connected to the at least one opening, and wherein air is caused to positively enter the cooling tube through the at least one opening by the air stream generator so as to form the additional cooling air stream (col 3, lines 41-54); the air stream generator has an injector which has a nozzle bore and a source of compressed air connected to the nozzle bore, with the nozzle bore of the injector communicating with the at least one opening, and wherein the cooling tube defines a center axis, and wherein the nozzle bore is inclined with respect to the center axis at an angle less than 90° so that the additional cooling air enters the cooling tube in a direction having a component in the direction of the advancing filaments; the air supply device has at least one opening in the cooling tube between the inlet and the outlet, and further having an adjustment device (Fig 1, #15) for varying the flow cross section of the at least one opening; the adjustment device has an air chamber externally

enclosing the at least one opening, and a throttling device (Fig 1, #15) for controlling air supplied to the air chamber via a supply line; and the supply line has a free end which is connected to an air stream generator.

Geus et al fail to teach guide means for gathering the advancing filaments to form an advancing multifilament yarn and a winder for winding the advancing multifilament yarn into a package.

Each of Jarrett, Vassilatos, Martin and Schilo et al each teach guide means and a winder for the purpose of gathering and winding into a package filaments advanced from a spinneret and subsequently cooled so that the gathered filaments may later be used separately.

It would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention to have modified the invention of Geus with guide means and a winder as taught by any of Jarrett, Vassilatos, Martin and Schilo et al because these cited references show that it is well known alternative to package filaments for later use.

16. Claims 1 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gehrig et al (3,929,542) in view of any of Jarrett (2,838,365), Vassilatos (4,687,610), Martin (5,234,327) and Schilo et al (5,612,063).

Gehrig et al teach a melt spinning apparatus having an extruder (Fig 2a) for heating a polymeric material and extruding the resulting melt through a spinneret nozzle (Fig 2a, #2) to form a plurality of downwardly advancing filaments; a cooling tube (Fig 1, #15 and #20) disposed below the spinneret nozzle for receiving the advancing filaments and having an inlet, a cylindrical portion below the inlet, and an outlet; a gas permeable

inlet cylinder (Fig 2a, #10) positioned between the spinneret nozzle and the inlet of the cooling tube; a suction generating device (Fig 2a, #15) connected adjacent the outlet of the cooling tube so as to generate an initial cooling air stream through the cooling tube in the direction of the advancing filaments (Fig 2a); an air supply device (Fig 1, #21) for generating an additional cooling air stream in the cooling tube, with the air supply device being positioned downstream of the inlet of the cooling tube; and the air supply device is connected adjacent the outlet of the cooling tube and so as to be positioned below the suction generating device such that the additional cooling air stream flows opposite to the direction of the advancing filaments (Fig 1).

Gehrig fails to teach guide means for gathering the advancing filaments to form an advancing multifilament yarn and a winder for winding the advancing multifilament yarn into a package.

Each of Jarrett, Vassilatos, Martin and Schilo et al each teach guide means and a winder for the purpose of gathering and winding into a package filaments advanced from a spinneret and subsequently cooled so that the gathered filaments may later be used separately.

It would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention to have modified the invention of Gehrig et al with guide means and a winder as taught by any of Jarrett, Vassilatos, Martin and Schilo et al because these cited references show that it is well known to package filaments for later use.

References of Interest0

17. Stanko (4,970,038), Kosaka et al (3,729,831), Schafer et al (6,103,158) and Leybourne III, et al (3,611,485) are cited of interest to show the state of the art.

Allowable Subject Matter

18. Claims 7 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

19. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to teach or suggest air supply device having an opening in the cooling tube and having an adjustment device, wherein the adjustment device is a sleeve which is slideably mounted on the cooling tube for completely or partially closing the at least one opening in combination with the limitations of the parent claims and fails to teach or suggest the air supply device being an annular perforated sheet that is conically shaped with its cross section increasing in the direction of the advancing filaments, positioned at the outlet of the cooling tube, upstream of the suction generating device and in combination with the limitations of the parent claims.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph S. Del Sole whose telephone number is (703) 308-6295. The examiner can normally be reached on Monday through Friday from 8:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Wanda Walker, can be reached at (703) 308-0457. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 for non-after finals and (703) 872-9311 for after finals.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Joseph S. del Sole
J.S.D.
February 11, 2003

ROBERT DAVIS
PRIMARY EXAMINER
GROUP ~~1300~~ 1722

2/13/03